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ABSTRACT

This presentation focuses on how foreign language study may be used to motivate hearing-impaired adolescents and to improve their English proficiency skills. Research on foreign language acquisition as it relates to self-concept development in hearing-impaired youth is reviewed, and a pilot project involving students at the Tennessee School for the Deaf in Knoxville is described. Through interviews, teacher observations, assessment of student progress, and a self-esteem inventory, 14 hearing-impaired 11th-grade students were evaluated to explore the relationship between their self-esteem and achievement motivation. Students from both an experimental and a control group participated in a computer-assisted vocabulary building program, and students in the experimental group also received Wortgefecht, a computerized German program that allowed students to learn basic grammar and syntax. Preliminary findings included: students in both groups had difficulty with the English vocabulary-building program; the teacher reported some change in the self-esteem (achievement motivation) of students in the experimental group; students in the experimental group scored higher on the German comprehension test than they did on the English; and students viewed their experiences with the computer-assisted German positively. (Includes 56 references.) (JDD)

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Pilot Project TSD:

A Study of Foreign Language, Academic Self-Esteem, and Achievement Motivation in Hearing Impaired Adolescents

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Paper presented at the International Congress on Education
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In Speaking in Many Tongues: Essays in Foreign Language Teaching, Wilga Rivers, commenting on the growing base of research supporting the broad academic benefits of foreign language study, emphasized that an essential objective of foreign language educators must be "to consider the needs of all youth: the gifted, the average, the less able, the handicapped, and the disadvantaged" (1983, 120-130). As the idea of an "open door" rather than elitist policy determining who studies a foreign language increasingly becomes adopted, foreign language educators are faced with the task of designing programs which fit those students with special needs.

This presentation will focus on how foreign language study may be used to motivate hearing impaired adolescents and to improve their English proficiency skills. By acquiring reading and writing skills in the target language (German), these students improve self-esteem as well as gain a new skill. This improved self-esteem, in turn, becomes a positive factor affecting their performance in their native tongue. Specifically, the presenters will discuss current research on foreign language acquisition as it relates to self-concept development in hearing impaired youth, connecting this research to preliminary data from their pilot project with eighth grade students at the Tennessee School for the Deaf (Knoxville). The project focuses on the relationship between academic self-esteem, foreign language study (German) and achievement motivation.

Implications of the study for classroom instruction with hearing impaired learners will also be examined.

Few individuals would dispute the idea that self-esteem and achievement are significantly correlated. Support for this position is provided by G.B. Gillman (1969) who states that the development of a positive self-concept is a necessary prerequisite to academic achievement and should be a major objective of every school that is concerned with the development of productive citizens (Battle, 1985).

C. Lipton (1963) echoes this view in discussing the relationship between self-esteem and achievement. He states:

> ...to know oneself and to value oneself contributes mightily to the development of an able learner, a curious learner, and a mature learner (p. 211, as cited in Battle, 1985).

Educators also emphasize the importance of self-esteem in the process of achievement and strongly believe that a negative self-concept contributes significantly to low academic achievement (Battle, 1985). Professionals working with the hearing impaired have also recognized the importance of self-esteem in the educational process. Despite this view however, little research on self-esteem has been conducted with hearing impaired subjects. When such research has occurred, it has generally focused on self-concept with self-esteem viewed as a sub-category. In his seminal work on self-concept and identity, George Mead (1934) suggested that communication is "essential for the development of self". That is, not until an individual can get into communication with other persons through symbols which arouse in himself the responses they arouse in others can he gain a mental

content or self" (Mead; 135-226 as cited in Craig). Because hearing impaired adolescents fail to receive significant informational feedback from their environment, they possess less data upon which to build an adequate or realistic self-image (Craig, 1965). As Meadow asserts:

> ....The individual develops a self, and a self-concept as he takes the role of significant others vis-a-vis himself or herself. The self becomes an object to itself by means of the manipulation of symbols, that is, through language. Cooley (1902) expressed this symbolic interactionist perspective in his discussion of the `looking-glass self' (Meadow, 1982).

Meyerson (1955) further emphasized the role of language in the development of self-concept in hearing impaired individuals. Using Lewin's field theory as a basis, he noted that each situation which required words posed a new psychological challenge for the hearing impaired individual. In turn, his/her perceptions of the situation dictated the response to it. These responses could be generally categorized as follows: (1) withdrawal to and involvement with deaf persons and rejection of non-deaf persons; (2) identification with the world of the non-deaf and rejection of deafness; and (3) entrance into "the large area of commonality that exists between those who have impaired hearing and those who have normal hearing" (Meyerson; 150-177, as cited in Craig). Meyerson emphasized that the last category afforded the hearing impaired individual with the greatest flexibility because it included a recognition of the actual boundaries imposed by deafness. This knowledge aids the deaf

person in "mapping the new psychological situations which arise" (Craig: 457).

Both Brunschwig (1936) and Craig (1965) found that hearing impaired children tended to have unrealistically high self-appraisals. Craig's study of 9-12 year olds suggested that deaf students were significantly less accurate than hearing children in their perceptions of themselves. On the sociometric instruments which she devised, Craig also found that residential students rated themselves higher than either deaf day students or non-deaf public school children.

In addition to higher than average self-evaluations, Brunschwig's studies of deaf students' personality aspects revealed that they associated with adults more often than did their hearing counterparts and engaged more frequently in solitary play activities.

These early studies along with more recent research (Barsch, 1968; Meadow, 1968; 1980; Bates et al, 1982 and Schlesinger, 1985) suggest that the early absence of parent-child interaction occasioned by the late diagnosis of deafness may be translated into inability on the part of the child to complete the critical developmental stages which Erikson (1963) outlined.

A.T. Jersild (1960) stated that self-discovery is a continuous process which affects achievement, and that significant others, particularly parents, play a major role in the development of perceptions of self. He comments:

> Among the earliest experiences which influence the development of the child's view of himself are those

> with other people... If a child is accepted, approved, respected and liked for what he is, he will be helped to acquire an attitude of self-acceptance and respect for himself. But if the significant people in his life - at first his parents and later his teachers, peers, and others persons who wield an influence - belittle him, attitudes toward himself are likely to become unfavorable. As he is judged by others, he will tend to judge himself (p. 123, as cited by Battle, 1985).

D. Syngg and A.W. Combs (1959) echo this view regarding the influence of others on the development of self-esteem in the developing child. In their book, Individual Behavior, they comment:

> Out of the interaction of the child with the world about him, the individual comes to differentiate more and more clearly his phenomenal self. Obviously, this concept can be only a function of the way he is treated by those who surround him. As he is loved or respected, praised or punished, fails or is able to compete, he becomes gradually to regard himself as important or unimportant, adequate or inadequate... The child can see himself only in terms of his experiences and in terms of the treatment he receives from those responsible for his development... He must necessarily become, in truth, what he has been labeled by the community which surrounds him (p. 83, as cited in Battle, 1985).

For the hearing impaired adolescent this becomes especially problematic when one considers that the primary task during this period is the development of a positive identity - including the ability to use appropriate communication modes and language. Inability to communicate well with family members and others means the hearing impaired adolescent receives few opportunities to validate self-worth, to share opinions or to express feelings. (Loeb & Sarigiani, 1968; Mindel and Vernon, 1987, 1971; Levine, 1981; and Kennedy, 1973).

In his investigations of self-concept with hearing impaired adults in metropolitan New York, Sussman (1973) reported that negative perceptions of self were frequently associated with beliefs that hearing individuals viewed deaf persons as deficient. "Hence, while the quality of one's interactions with others may be viewed as critical to his or her concept of self, the individual's interpretation of social experience represents the actual foundation upon which that same concept is built" (Garrison & Tesch, 1976).

Societal definitions of "handicap" in negative terms may also adversely affect the deaf adolescent's self-esteem. Furth (1973) was among the first to note that hearing impaired children are the most vulnerable to social reaction to their condition. Recently, Harlan Lane (1988) studied the psychology of the hearing impaired and the literature upon which this psychology is based. He discovered contradictory and uniformly negative characteristics attributed to hearing impaired persons. The research which generated these characteristics was equally questionable - relying on invalid paper and pencil measures, inappropriate interviewing techniques and unreliable test results. Despite these questions, the studies continue to be cited in the literature on the psychology of deafness and the findings used to characterize hearing impaired individuals.

ACHIEVEMENT MOTIVATION AND HEARING IMPAIRMENT

Bandura (1978) viewed learning and related behavior as resulting from three sets of interacting influences: (a) background or given influences such as gender, ethnicity, and ability; (b) psychological or personal self-concept factors such as attitudes, beliefs, and previous experiences; and (c) environment or social factors in society that affect the individual.

Farmer (1985) has taken this construct and added cultural influences to evolve a multi-dimensional model of career and achievement motivation (Figure 1).

Background factors, such as sex, social status, school location, race, age, and ability influence motivation. This background set influences a person's developing self-concept, the Personal set and the way the environment is perceived. The self-concept of the growing person is further influenced by experiences in the home, school, and community--the Environmental set - and these in turn affect motivation. The Personal set is also viewed as affecting both the Environment and Motivation sets. What occurs between the Personal and Environmental sets is similar to the kind of reciprocal interaction effect described by Bandura (Farmer: 365).

In this construct, where an individual expects to fit into the prestige structure of an occupation; the drive to achieve and master specific tasks; and a sense of commitment to the long-range prospects of a career significantly alter his/her achievement motivation.

MOTIVATION

Farmer's model includes three dimensions of motivation which she defines as follows: aspiration, or the level of education to which an individual aspires; mastery motivation, or the tendency to choose difficult tasks over less challenging ones and the willingness to struggle to master that task (Spence and Helmreich, 1978, cited by Farmer, 1985) and career motivation, or the commitment to a career as a central element in one's life (Super, 1980, cited by Farmer, 1985).

These aspects of motivation are, in turn, influenced by the three sets of variables already discussed.

Although the authors were interested in the effect of all three variables on the three levels of motivation, they were particularly intrigued by the personal set of variables. In their own work, the authors are examining academic self-esteem; that is the individual's evaluation of his/her ability to complete academic tasks. Several researchers (Gottfriedson, 1981; Sewell & Hauser, 1975, as cited in Battle) have noted that the ability to complete academic tasks positively correlates with high aspirations in an individual. Academic self-esteem has also been related to mastery motivation as well as to long range career motivation.

A study of the effect of all personal variables, and in particular academic self-esteem, may yield important data about the self-concept of hearing impaired adolescents, particularly as

the educational setting plays a central role during a time when their identities are being solidly formulated. It is also the area where the most immediate and effective changes in achievement motivation may be accomplished on a group as a whole, for it is in the educational setting that the students have the most common experiences, in contrast to the widely variable background and environmental influences of family and home. Studies on the self-concept development of hearing impaired adolescents and on their social integration (Ladd, Munson, & Miller, 1984) suggest similar implications for that population. This underscores the need for a social context, like the classroom within which the academic self-esteem of hearing impaired adolescents may be cultivated.

REALIZING THE POTENTIAL: FOREIGN LANGUAGE STUDY AND ACHIEVEMENT MOTIVATION

In 1988, at the Third Regional Conference on Post-Secondary Education for Hearing Impaired Persons, one topic discussed under the general conference theme "Nurturing Secondary and Post-Secondary Experiences" was the issue of how to span the gulf between accessibility and accommodation, that is, to make the latter a natural result of the former (Bergquist). The moderator spoke of legislation which has made many educational programs and career opportunities accessible to the hearing impaired but also rightly noted the deplorable lack of accommodations within those programs which would allow deaf students to realize their fullest benefits. While providing those accommodations--be they

specially designed courses or other curricular innovations--certainly requires a great deal of flexibility in programming, it would allow, she noted, hearing impaired students not only to better evaluate their abilities but also to "redefine their challenges and what their limits are." (Hague, 1982).

This notion of redefining personal challenges and limits is essentially another way of talking about achievement motivation, that is, behavior which "occurs in reference to a standard of excellence and can thus be evaluated in terms of success and failure." (Maehr, 1974). The research which my colleague and I have undertaken attempts to examine how foreign language study can be used with hearing impaired adolescents as a tool for accommodation, as a motivator which can stimulate growth of a positive self-image and the drive to achieve, which, in turn, leads to improvement in communicative skills in the native as well as the target (foreign) language.

More than at any time before, foreign language educators are concerned with the concept of achievement motivation, for research conducted during the last two decades points to psychological as well as cognitive benefits of foreign language study. Aside from the progressive increase in second language skills which may be attained through prolonged study of a foreign language, researchers have been investigating the benefits which carry over to student performance in other areas. Indeed, studies done during the last decade increasingly show evidence of the positive correlation between college entrance

test performance and foreign language study (Brigman and Jacobs, 1981; Cooper, 1987). It has also been discovered that transfer of skills from the native to target language are reciprocal, more specifically, that reading skills are transferable from one language to another (Al-Rufai, 1976; Cooper) and that vocabulary acquisition in the native language may have implications for acquisition in the target language (Hague, 1982). Thus, analytical and critical skills which are sharpened as a result of second language learning can improve performance on standardized tests; conversely, strong reading skills in the native tongue are reinforced when applied to the target language.

Furthermore, research shows that, along with the cognitive benefits, foreign language study can, in fact, be effective in building a positive attitude toward self and in strengthening student confidence and ability in other areas of their curriculum (Masciantonio, 1977; Jarvis, 1979; Bree, 1983). Twenty years ago, before such studies were attempted, a pioneering foreign language educator committed to the concerns of her minority students had already come to this conclusion when she reported a "heightening of morale" among her secondary students in French and increased self-confidence which occurred "with acquisition of even minimal skills in a language" (Hubbard, 1968; 1980). She carefully and correctly cautioned her fellow educators, however, not to place all responsibility for achievement in foreign language study on pupil aptitude and attitude toward the subject. She heartily and rightfully entreats foreign language instructors

to keep in mind the role of teacher language, behavior, and personal sensitivity toward the individual in shaping that self-esteem. Indeed, her ideas, which were advocated over a decade ago, underscore the current prevailing notions surrounding principles of foreign language instruction, which emphasize the idea of teaching for proficiency.

BROADENING THE BASE AND IMPROVING COMMUNICATIVE COMPETENCE THROUGH PROFICIENCY-BASED INSTRUCTION

In a situation not unlike that posed by the frustrating debate between accessibility and accommodation, foreign language educators have been busily engaged during the last two decades in more effectively translating theory into practice. During the seventies there was a push to increase interest in , to extend it to a broader clientele, and to better integrate cultural information with communicative competence. The success of that push, which led to increased foreign language enrollments and continues to bring about legislation in a number of states mandating foreign language education for all, framed two important imperatives for the eighties and nineties: (1) to develop an organizing principle for foreign language instruction, by which "various other methods, approaches, materials, and curricula might begin to make collective sense" (Omaggio, 1985) and (2) to "set new, meaningful, and realistic goals and adopt creative, strategy-based methods and materials, designed for different kinds of pupil populations" (Barnett, 1989). As a

result, developments in foreign language education have focused on the idea of proficiency-based instruction, that is, teaching with an aim toward "the ability to function effectively in the target language in real-life contexts" (Omaggio, 1985). This has, in fact, always been at the core of foreign language instruction but has often become obscured in the long and embattled quest for the definitive approach to language teaching.

In 1978, under the auspices of the President's Commission of Foreign Language and International Studies, members of the language teaching profession joined with the Educational Testing Service and other professional organizations involved with foreign language instruction to consider carefully the issue of proficiency, with special emphasis on oral proficiency, and to develop proficiency scales and interview procedures for academic use (Liskin-Gasparro, 1985; Omaggio, 1985). The scales, a refinement of the government scale (Interagency Language Roundtable) which had been used for over forty years with trainees for the Foreign Service Institute, were changed to suit the needs of the academic community: they were expanded at the lower levels; more precision and latitude were allowed in describing competencies at various levels of proficiency; specific guidelines were developed for reading, writing, and listening comprehension to parallel what had been developed for oral skills. One very important characteristic of the scales is that they are not linear; instead, they take on the form of an

inverted pyramid, so that moving up the scales requires progressively more language skill.

Certainly important to this concept of proficiency-based instruction is the idea that emphasis on communicative skills in the target language does not rely heavily on a prescribed degree of competence in the native language. Instruction concentrates on levels of mastery which build confidence in using the target language, while eliminating the need for memorizing long conversational dialogues or producing exact translations of written material. Properly used, the approach allows for a great deal of self-direction and differential progress among students by eliminating the requirement that all attain the same level at the same time. Therefore, no student need have perfect command of English in order to achieve a level of competence in the foreign language or to reap other cognitive benefits associated with . Thus, for the hearing impaired student, may become both a means and an end. As a means, or motivating tool, it can build self-esteem and confidence in using communicative skills in the target language; as an end, it can lead to improved performance in other studies.

PILOT PROJECT TSD

Joiner, Erikson, Crittenden, and Stevenson (1969) studied the self-perceptions of deaf children's ability as they relate to academic achievement and found that a measure of self-concept

(academic ability) was a better predictor of grade-point average than were IQ measures for both deaf and hearing adolescents. They concluded that increased attention to students' self-perceptions of ability may facilitate academic achievement (Garrison & Tesch: 462).

Garrison & Tesch (1978) cite recent experimental work with normally hearing individuals relating self to the specific structure of the social situation (e.g., Webster & Sobieszek, 1974) to suggest that self-concept needs to be examined in relation to a particular social context rather than as a global phenomenon; that is that self-concept affects behavior differently depending upon the situation (Garrison & Tesch: 462).

Further, in any study of self-concept and hearing impairment, developmental issues should also be considered. Adolescence is a period of change during which self-image may be adversely affected by physiological issues. Therefore, any study of self-concept during this stage must, as McCandless (1970) and Garrison & Tesch (1978) have suggested, take into consideration developmental issues in interpreting results.

Guided by the aforementioned research imperatives, the authors designed a pilot project at the Tennessee School for the Deaf to determine whether there is a relationship between self-esteem and achievement motivation in hearing impaired adolescents. Specifically, the study focuses on the following questions:

1. What effect will computer-assisted instruction in German and exposure to German materials have on the self-esteem

of hearing impaired adolescents?

2. What effect will computer-assisted instruction in German have on the motivation of hearing impaired adolescents to learn English grammar and vocabulary using computer-assisted instruction?

3. Are there significant differences in achievement motivation in English and German related to gender?

DESIGN OF THE STUDY

A case-study design was selected including in-depth interviews with participants and teacher observations. To provide additional evaluative date on the intervention, student progress on unit tests were recorded as well as their responses on The Culture-Free Self-Esteem Inventory (Form A).

One class of students from the Tennessee School for the Deaf (Knoxville) and their teacher participated in the study.

SUBJECTS

Two groups of hearing impaired adolescents (N=14), with a mean pure tone hearing loss of 93R and 115L, were randomly assigned to the control and experimental groups. The students were eleventh graders and had all passed the Tennessee Proficiency Test in Language, and were reading on the SAT/HI test at between a 3rd and 8th grade level. There were eight students in the control group and seven in the experimental group. Six of the students were males and eight were females. All of the subjects were white and had been deaf from birth. Two subjects (one male from each group) left school and did not complete the

intervention program.

The teacher was female, in her forties and had been teaching at the school for 14 years. Her primary responsibility was teaching English grammar and syntax to middle and high school students. During her first years at the school, the teacher had taught in the upper elementary program. The school has developed its own Signed English system which the teacher uses well. She also makes use of PSE/ASL when needed for involved explanations of concepts or to clarify information.

For the last five years, the teacher has used Latin and Greek to help students understand the derivatives of English prefixes and suffixes, root words, antonyms and synonyms.

Pre-test English scores were obtained for both groups using Quigley's Test of Syntactic Ability. The results are summarized in Tables 1 and 1a. Since the study only focuses on grammar and vocabulary, the pre-intervention scores of all the participants in English were needed. This instrument is also used by the school to determine student achievement in English and the researchers wanted to monitor student progress using the same measures of achievement.

THE CULTURE-FREE SELF-ESTEEM INVENTORIES (SEI) FOR CHILDREN

Students in both the experimental and control groups received Form A the Culture-Free Self-Esteem Inventories for Children (Battle, 1977). The instrument was normed on boys and

girls in grades three through nine. It has also been successfully used to assess junior high school pupils as well.

Form A is recommended for students who are visually impaired or those who may experience reading or language difficulties and can be administered individually by the teacher. Although there are no norms for hearing impaired students, the instrument has been normed with subjects who experience reading and language difficulties.

Form A contains sixty items and the following five sub-scales:

1. General self-esteem items
2. Social/peer-related self-esteem items
3. Academics/school-related self-esteem items
4. Parents/home-related self-esteem items
5. Lie items (items which indicate defensiveness)

The items in the instrument are divided into two groups: those which indicate high self-esteem and those which indicate low self-esteem. The individual checks each item either "yes" or "no." The students took Form A in two groups.

CONTENT VALIDITY

To establish content validity, the developers of the test (1) generated a construct definition of self-esteem, and (2) wrote items intended to cover all areas of the construct. This definition follows:

> Self-esteem, as measured by the Culture-Free SEI for children and adults, refers to the perception the individual possesses of his own worth. An individual's perception of self develops gradually and becomes more differentiated as he matures and interacts with significant others. Perceptions of self-worth, once

established, tend to be fairly stable and resistant to change.

The sixty items of the Culture-Free SEI for Children (Form A) used in this study are the most discriminating ones from a pool of 150 according to the factor analysis conducted to establish internal consistency.

CONCURRENT VALIDITY

In 1976, a comparison of the instrument with Stanley Coppersmith's Self-Esteem Inventory (1967) was conducted by the test developers. The comparison indicates that correlations between the two instruments were significant for all grade levels and when male and female scores were compared. Correlations for the total sample ranged from .71 to .80; values for boys ranged from .72 to .84; for girls, from .66 to .91. The Culture-Free SEI also correlates favorably with other measures of personality, including A.T. Beck's Depression Inventory (Battle, 1977, 1980) and the Minnesota Multiphasic Personality Inventory (MMPI) (Battle, 1980).

The authors found that the sub-scale items (academics/school-related self-esteem) closely paralleled those variables found in the personal set of Farmer's Model of Achievement Motivation.

Administration. Prior to the introduction of the German and English instruction and at the conclusion of the program, students completed the Self-Esteem Inventory. Individual

problems related to vocabulary and sentence structure with any item were noted by the teacher along with the length of time required for the students to complete the instrument. Teacher perceptions of each student in the study were also recorded prior to the intervention using the Teacher Behavior Checklist (Battle, 1982).

Scoring and Interpretation. Scores for the Culture-Free SEI for Children and Adults are derived by totalling the number of items checked which indicate high self-esteem, excluding the lie scale items. A separate score may be computed by totalling the number of items checked correctly in the lie scale. Thus, the total possible score for Form A is 50, and highest possible lie score is 10.

The students experienced difficulty with some of the items on the inventory. Specifically, items which contained the words "always," "sometimes," or "never" had to be explained by the teacher before the students could respond. In doing this, the teacher used a combination of PSE/ASL, depending on the student's level of proficiency in English.

Means and standard deviations on the results of both administrations of the instrument are summarized in Tables 2 & 3. The variations in scores between the treatment and control groups were not statistically significant. Specifically, in the areas of general self-esteem and academics/school-related self-esteem, there was little difference between the treatment and control groups prior to or after the intervention. The students were at

or above average on total scores of self-esteem and high average on academic self-esteem. There were also no statistically significant differences in general self-esteem between or among the scores of males and females in either the treatment or control groups. Scores on academic self-esteem also did not vary significantly. For both groups, the scores were somewhat higher when compared with those of hearing impaired subjects of the same age. Even with the smaller number of subjects, these findings are similar to those reported by Brunschwig and Craig on the tendency of hearing impaired subjects in their studies to possess unrealistically high self-perceptions.

INTERVIEWS

A random selection of six students from both the control and experimental groups participated in three in-depth interviews with a certified interpreter of the deaf. These interviews were videotaped and lasted an average of thirty minutes. The first was taken prior to the introduction of the intervention program. The interviews were separately viewed by a second interpreter of the deaf who provided translations of each student's responses (Note: This individual holds RID certification as well and serves on the national certification board for interpreters of the deaf). Transcripts were then analyzed by the authors using Goetz & LeCompte (1984) system of analytic induction to determine emerging themes and patterns. Specifically, the authors were interested in each student's self-perceptions and whether or not

they were consistent with his/her scores on the Culture-Free Self-Esteem Inventory. Interviews were also analyzed to determine the effect, if any, of the intervention on achievement motivation.

The teacher was interviewed after the intervention to gain perspectives on each student's progress and on the program. Teacher participation was voluntary and there was an orientation to the intervention prior to its introduction.

THE INTERVENTION

Students from both the experimental and the control groups received Word Attack Plus, a five-part vocabulary building program designed to help the student learn new words, their meanings and usages. Students do all the work on the computer at their own pace and receive positive reinforcement as they progress. There are ten levels of difficulty from fourth grade to adult. Each level is divided into three parts -- adjectives, nouns and verbs -- and contain the following learning activities:

1. Word Display - introduces the words on the list; each word, its synonym or a brief meaning, and a sentence illustrating correct usage is displayed.

2. Multiple Choice Quiz - the word is displayed, and the student must select the correct word; if incorrect, one may try again, and if wrong a second time, the correct answer is highlighted.

3. Sentence Completion - the meaning of the word is displayed at the top of the screen, and the correct word is to be typed in the sentence displayed below; the student may request a hint, and twelve words from the lesson are displayed below.

4. Word Match - words are displayed on the screen in

overlapping boxes; it must be matched to the definition which appears at the bottom of the screen; the student has access to one layer of boxes at a time.

5. Word Attack Plus Game - an arcade-type game; the student uses the joy-stick or keyboard to move the "hattacker" directly under the word which matches the definition at the bottom of the screen (he flings his colorful hat at the correct word, therefore hattacker); a timer is displayed, and the student must earn points before the time runs out (three speeds are possible).

Supplementary Activities

1. Certificates of Excellence may be printed
2. Students and teachers can keep track of their progress with the record keeping system.
3. The teacher may use the Editor to customize the program.
4. The Editor allows the teacher to print out any original or custom file in a sequence completion test form; flash cards can be printed so that students can study the words and their meanings away from the computer.

DESCRIPTION: WORTGEFECHT

Students in the experimental group received Wortgefecht, a computerized German program which allowed them to learn basic grammar and syntax with little teacher assistance or direction. This program was deliberately selected by the researchers since few teachers of the hearing impaired are fluent in a second language. Further, the teacher participant in the study had no knowledge of German.

German was also selected because of its close resemblance to English.

The design of the computer program used is the same as in Word Attack, except that there are only four activities (the word

match is not used) and no flash cards are available. Instead of being given hints, students needing help may get the English translation of a sentence. Each topic on the data disk is divided by part of speech: adjective, noun, verb. As with the Word Attack, the printer option allows the teacher to create and edit data disks, to print any topic in its entirety, and to generate a fill-in-the-blank test for any given topic (with answer sheet and answer key). Students may print out a list of questions missed.

SUMMARY OF THE FINDINGS

The findings reported in this paper are preliminary, since analysis of the data has not been completed.

In the interviews, the students in the experimental group specifically talked about the "fun" of finding meanings of the words in German and relating them to the English counterparts. They also discussed how using the computer, without teacher assistance, made them feel independent.

Students in both the control and experimental groups had difficulty with the English Word Attack program. Neither made significant progress, although the teacher observed that she noticed less hesitation on the part of students in both groups to try the new English programs. Whether this suggests that students demonstrate less reluctance to attempt computer-assisted English programs than more traditional approaches is unclear from our data. The fact that they had also had extensive experiences

with more traditional approaches to English instruction at the school may have influenced their response to the computer-assisted learning programs.

The teacher reports suggest that some change did occur in the self-esteem (achievement motivation) of students in the experimental group. As part of the project, she was asked to keep a journal of her program and student observations. In describing student progress during the first weeks of the program, the teacher noted that students in the experimental group scored higher on the German comprehension test than they did on the English. Since the programs were individualized, the teacher was able to follow each student's progress and document what occurred over the six month course of the project.

At the end of each level in both the English and German programs, computer "games" were provided to reward students for their persistence. After students completed Level 1 in both English and German (experimental group), they were given a choice of playing the game or moving to the next level. In the experimental group, every student opted to continue to the next level of the German and English rather than play the computer game.

The teacher also reported that students in both the control and experimental groups purchased German dictionaries once the intervention began. Students in the control group also approached the teacher about learning German in the coming years.

Analysis of the data continues, therefore it is unclear whether relationships exist between foreign language study and achievement motivation in the hearing impaired adolescents who participated in this pilot. Both the interview data and the scores on the German grammar and vocabulary tests suggest that the students made progress. Teacher observations also suggest that students positively viewed their experiences with the computer-assisted German, although they were less positive about and less successful in their computer-assisted English experiences.

Despite their preliminary nature, however, they suggest some implications for teachers of hearing impaired adolescents in general and for foreign language teachers in particular. The most immediate means available for incorporating foreign language study into the curriculum of hearing impaired youth is through modern technology. Of course, self-directed texts and correspondence courses have been available for some time, but modern media, through computers and captioned videos and films (of the students themselves as well as commercial films), make the foreign language instruction for the hearing impaired adolescent a much more stimulating, interactive and thereby potentially motivating experience. Computer Assisted Instruction (CAI) and computer Assisted Language Learning (CALL) are just two versions of computer technology which have become an integral supplement to virtually all foreign language textbooks and many foreign language curricula across the country, for such

technology is especially well-suited to individualized instruction and varied rates of progression which occur in any given class. These materials, many of which are developed specifically for a particular textbook, enable each student to work at his/her own pace, to review, and to self-test as well as to work on a regular basis with the whole class as a group. Furthermore, relatively easy-to-learn authoring programs allow instructors to design whole courses as well as course units for groups and individuals alike. With authoring programs such as MacLang and Hypercard, language teachers having even minimal computer experience can design practice exercises and tests tailored specifically to their course materials. Other pre-packaged programs such as Lingo Fun, Inc, Wortgefecht, and German Verb Tutor (Hodges and Rice, Hyperglot Software Company) are available for teaching purposes. Programs such as these, which often include games which are very popular among high school students, not only allow students to learn and review specific vocabulary and areas of grammar, but in many cases are designed so that the instructor is able to maintain records of the students' progress and to create his/her own data disks and test materials to use in conjunction with the program provided.

Slides, films, and filmstrips have long been available, but increasingly language laboratories and classrooms (or language departments) are equipped with televisions so that films and taped movies may be included for integrating cultural information along with study of specific elements of the language. There is

a great need for captioned videocassettes designed specifically for foreign language study. Current versions of already excellent series such as Deutsch direkt (EMC) or Alles Gute! (Langenscheidt) might be retaped with captions. In addition, an invaluable instructional method would be to tape, caption, and replay special programs and activities of the students themselves in skits or dialogues based on their foreign language study.

Immediate applications will multiply, however, only to the extent that more long-term and permanently effective strategies are developed and incorporated.

Among these is a greater attention in the classroom to the development of self-esteem in hearing impaired learners. Craig (1965) offered the following suggestions for improving the self-concepts of hearing impaired learners:

First, a need is indicated for greater educational attention to this problem of the social self - the self rising out of social interaction - in addition to present education which is more directly academic. The vocabulary, or more broadly, the language taught, might well be examined and assessed for possible inclusion of items and concepts pertinent to facilitating more precise communication in social interaction.

Second, more emphasis could be placed on self-evaluation, rather than on rewards and punishments of external authority figures, in all forms of curricular and extracurricular activity. This would allow more self-involvement and more practice in

evaluation self than is offered by the imposed evaluations of the teacher, supervisor, or other authorities.

The most slowly developed, but at the same time, permanent and comprehensive strategy is the generating of research which spans the concerns of non-traditional as well as the more traditional student in foreign language; the results eventually effect all students to the extent that the results of the research are used to make demands on administrators who control funds and take the lead in formulating policies necessary to implement innovative programs. Supervisors and chairpersons of foreign language programs and leaders in school/college academic alliances can help to further this process by supporting research efforts of limits scope which can in turn lead to more extensive longitudinal studies from which all can benefit.

If the findings from Pilot Project TSD provide insights into the relationship between academic self-esteem, achievement motivation and foreign language, they may well facilitate the development of innovative learning environments and materials which empower and encourage the growth of positive self-esteem in hearing impaired adolescents.

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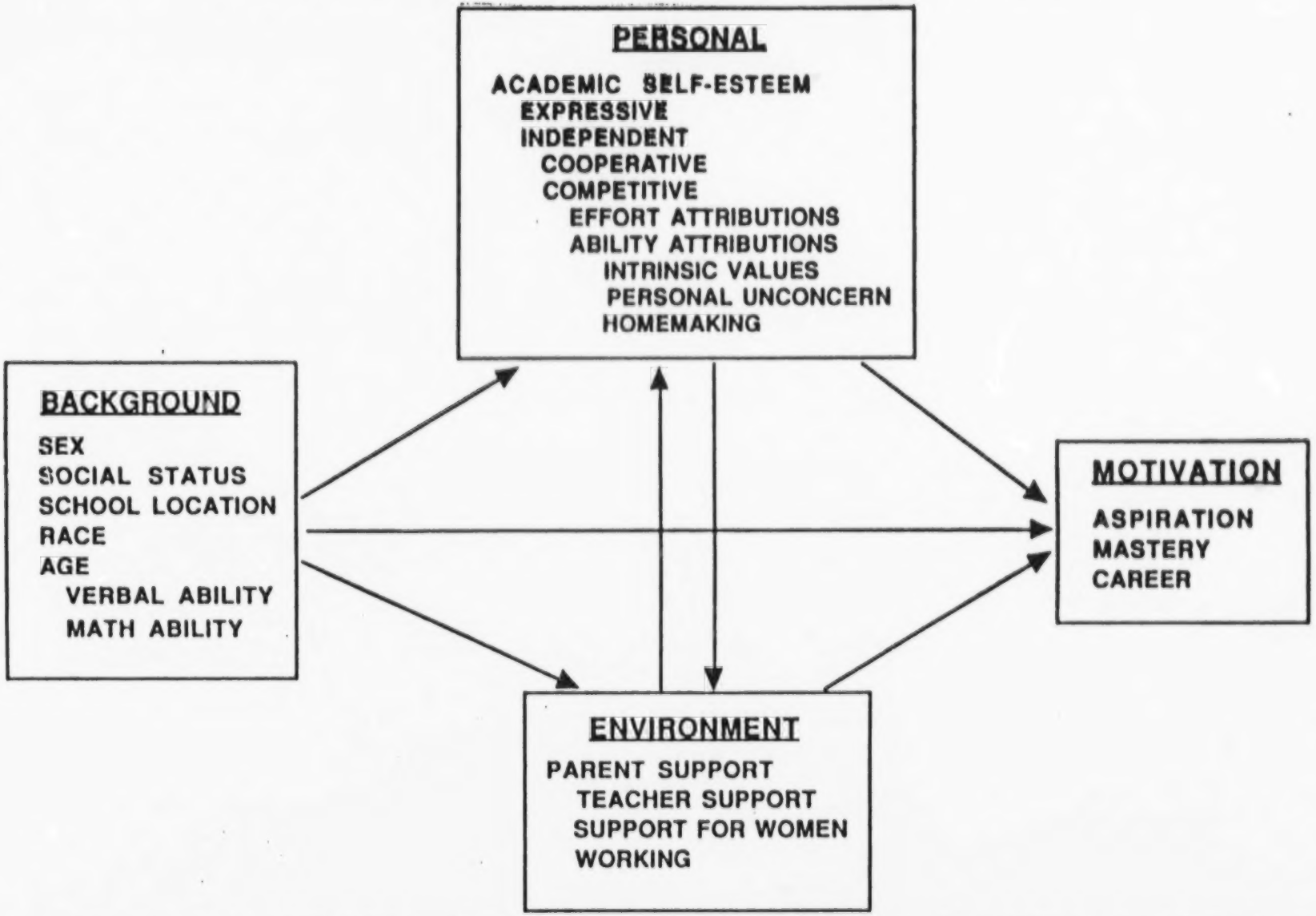
FIGURE 1

MODEL OF CAREER AND ACHIEVEMENT MOTIVATION



Conceptual model for testing the contribution of Background, Personal, and Environment factors to three dimensions of motivation: aspiration, mastery, and career.

Table 1

QUIGLEY SCORES

Control

Student	Negation	Conjunction	Determiners	Question Form	Verb Processes	Pronouns	Relativization	Complementation	Nominalization	Total
D	100	73	71	82	80	70	47	72	61	73
F	100	64	100	100	80	100	68	78	50	82
J	100	91	100	100	100	90	95	83	94	95
K	100	91	93	100	90	90	95	89	100	94
L	100	82	86	82	70	70	63	78	72	78
M	89	91	86	100	100	100	63	94	89	90
N	100	73	71	100	90	90	47	72	61	78

Table 1a

QUIGLEY SCORES

Experimental

Student	Negation	Conjunction	Determiners	Question Form	Verb Processes	Pronouns	Relativization	Complementation	Nominalization	Total
A	100	82	86	100	50	80	58	78	61	77
B	100	91	93	100	90	100	100	100	94	96
C	100	100	79	91	90	100	84	83	78	89
E	100	91	100	100	90	90	89	94	100	95
G	100	100	93	91	100	100	84	94	83	94
H	100	82	100	100	90	90	95	83	89	92
I	100	100	93	100	90	90	100	94	100	96

Table 2

CULTURE-FREE SELF ESTEEM INVENTORIES - PRETEST

CONTROL

	TOTAL	G	S	A	P	L
All Students						
M	38.14	10.7	6.0	7.9	6.1	7.4
SD	6.38	3.32	1.19	1.35	2.69	1.29
Male						
M	39.50	10.5	6.5	9.0	6.5	7.0
SD	2.50	4.5	1.5	0.0	1.5	2.0
Female						
M	37.60	10.8	5.8	7.4	6.0	7.6
SD	7.31	2.71	0.98	1.36	3.03	0.80

EXPERIMENTAL

	TOTAL	G	S	A	P	L
All Students						
M	42.13	14.6	7.0	8.8	6.8	5.0
SD	4.73	2.00	2.24	0.83	2.99	1.0
Male						
M	40.80	14.4	7.2	9.0	5.8	4.40
SD	4.71	2.42	1.94	0.63	3.19	2.14
Female						
M	44.33	15.0	6.7	8.3	8.3	6.00
SD	3.86	0.82	2.62	0.94	1.70	0.82

Table 3

CULTURE-FREE SELF ESTEEM INVENTORIES - POSTTEST

CONTROL

	TOTAL	G	S	A	P	L
All Students						
M	38.50	11.8	5.8	9.8	6.0	7.3
SD	2.50	2.046	1.29	0.43	1.73	1.29
Male						
M	39.00	15.0	7.0	9.0	5.0	3.0
SD	0.00	0.00	0.00	0.00	0.00	0.00
Female						
M	38.33	10.7	5.3	10.0	6.3	6.0
SD	2.87	0.94	1.25	0.00	1.89	0.00

EXPERIMENTAL

	TOTAL	G	S	A	P	L
All Students						
M	41.86	14.00	6.71	9.14	6.86	5.14
SD	2.42	2.07	1.39	0.64	2.36	2.85
Male						
M	40.75	13.50	6.75	9.25	7.50	3.75
SD	1.48	2.60	1.48	0.43	2.29	2.49
Female						
M	43.33	14.67	6.67	9.00	6.00	7.00
SD	2.62	0.47	1.25	0.82	2.16	2.16